

Attorney Docket No.: J3651(C)
Serial No.: 10/506,374
Filed: September 2, 2004
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REMARKS

Claim 2 has been recast in independent form, with the poly(aminoalkyl methacrylate) blocks being further identified as having alkylamino groups derived from moieties selected from the group consisting of C₁₋₄₀ straight chain, C₃₋₄₀ branched chain or C₃₋₄₀ carboxycyclic moieties. See the specification at page 14, lines 7-10. Claim 3 has been recast in independent form. Additionally, claims 1, 2 and 3 have each been amended to incorporate the requirements of claim 4. Claims 17 and 18 have been amended to follow the format of claim 7 as regards the description of the solvent. Claim 19 has been amended to delete the parenthetical "such as" language.

Entry of the above amendments is respectfully requested.

Applicants submit that beginning a dependent claim that directly or indirectly references back to an independent claim with "a" rather than "the" is not improper. Indeed many issued patents follow this format, see for example, US 4,988,506; US 5,472,686, US 5,660,819 and US 5,980,878, cited in the Information Disclosure Statement dated May 18, 2005. As regards the 35 U.S.C. 112 rejections, it is respectfully submitted that the amendments set forth above overcome same. Regarding claim 19, Applicants respectfully submit that the statement in the Action stating that Claim 19 is rejected because "no written description exists for "R" being substituted" is incorrect. See, for example, page 9, lines 11 to 12 ("in which R is a divalent, optionally substituted, linear or branched, C₁-C₁₂ alkylene"), together with the description of divalent hydrocarbon radicals in the first paragraph of page 11 which includes, among other divalent hydrocarbons, alkoxyalkylene radicals such as methoxyethylene and ethoxyethylene radicals, alkylene radicals such as

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methylphenylene and ethylphenylene radicals and alkoxyarylene radicals such as methoxyphenylene and ethoxyphenylene radicals, all of which qualify as falling under the description of "substituted divalent C₁-C₁₂ alkylenes".

Claim 1 stands rejected under 35 USC 102 as anticipated by Nagarajan et al. ("Poly(ethylene glycol) block copolymers by redux process: kinetics, synthesis and characterization", Pure & Appl. Chem., Vol 70, No. 6, pp. 1245-1248, 1998). Additionally claims 1-3 stand rejected under 35 U.S.C. 103(a) as unpatentable over Nagarajan in view of Pei-Hong et al. ("Synthesis and Characterizations of Poly[2-(dimethylamino)ethyl methacrylate]-Poly(propylene oxide)-Poly[2-(9dimethylamino)ethyl methacrylate] ABA Triblock Copolymers", J. of Polymer Science: Part A: Polymer Chemistry, Vol 40, 624-631, 2000). Claims 4-6 and 19 stand rejected under 35 U.S.C. 103(a) over Nagarajan et al. in view of Adams et al. (US2002/0098214). Claims 7-15, 17 and 18 stand rejected over Nagarajan et al. in view of Frechet et al. (US 2002/0160026). These rejections are respectfully traversed.

Nagarajan et al. describes the synthesis of ABA block copolymers that contain both hydrophilic blocks (i.e., PEG) and hydrophobic blocks, the hydrophobic blocks being derived from vinyl monomers, such as, for example, acrylonitrile, acrylamide, methyl methacrylate and methacrylic acid. The synthesis takes place by a redux initiation where an oxidant such as Ce(IV), Mn(III), V(V), Cr(IV), Co(III), Fe(III) is employed to form an intermediate PEG macroradical which acts as a macroinitiaor for the polymerization of the vinyl monomer. Pei-Hong et al. discloses the preparation of ABA block copolymers having a **poly(propylene oxide)** B block and poly (2-dimethylamino)ethyl methacrylate) A blocks. The reaction is described as an oxyanion-initiated polymerization that employs a dipotassium alcoholate initiator. Neither of these citations discloses ABA polymers having linker groups as required

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by the subject claims. It is respectfully submitted that the incorporation of the requirements of claim 4 (specifying that each A block of the polymer is connected to the B block by a divalent linker group) into claims 1, 2 and 3 moots the rejection of claim 1 as anticipated by Nagarajan et al., as well as the rejection of claims 1-3 as obvious over Nagarajan et al. in view of Pei-Hong et al.

The focus of Nagarajan et al. and Pei-Hong et al. is the synthesis of particular ABA block copolymers; neither citation discloses or suggests applications of such polymers, in fact, at the second to last paragraph at page 1245 Nagarajan et al. states:

The present paper describes about the novel synthesis of PEG block copolymers with various vinyl monomers from Ce⁴⁺-PEG and Mn³⁺-PEG redox systems as part of our ongoing investigations. This method of block copolymerization could also be used for the preparation of emulsion at room temperature (ref.6). The potential uses of these polymers for other application is under investigation.¹ Emphasis added.

Moreover, there is nothing in either citation that discloses or suggests the use of the polymers therein described in hair styling products.

As noted in Applicants' prior response, Adams et al. is directed to polysiloxane block copolymers of the general formula [A]L[B] in which A is a polymeric block built up from radically polymerizable monomer, B is a polysiloxane block and L is a divalent linker. Although the Adams et al. polymers contain linking groups, the polymers are compositionally very different from those of the PEG block copolymers of the subject invention. The patent discloses nothing about the relevance of linking groups to polymers such as are disclosed by Nagarajan et al.; nor

¹ Ref. 6 is identified simply as "S. Nagarajan and K.S.V.Srinivasan, Indian Patent (Filed)". No number or other identifier is provided.

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does it disclose or suggest that the incorporation et al. of linking groups into the ABA block copolymers of Nagarjan et al. would result in polymers having application in hair styling products, in particular, products that impart good hold under conditions of high humidity. If anything, the disclosure in both Pei Hong and Nagarajan et al of their respective ABA polymers being soluble in water seemingly teaches away from their use as styling aids to provide improved high humidly hold.


Frechet et al. is directed to cometic or personal care compositions, e.g. styling products, that contain certain thermoplastic elastomers having core and flanking polymers that provide the elastomers with both hard and soft segments and impart a certain elasticity to the polymers and, in turn, flexibility to hair treated with styling products containing such polymers. At paragraph 0041 Frechet et al. discloses that "preferably, the flanking polymer and/or the core polymer, more preferably both the core polymer and the flanking polymer, comprise backbones which are obtainable by free radical polymerization of vinylic monomers". Nothing in the citation discloses or suggests polymers having a PEG core and this preference seemingly teaches away from such polymers. It is respectfully submitted that there is nothing in the citation that in any way discloses or suggests that ABA copolymers having a PEG core joined to A blocks through divalent linking groups would be suitable for use in hair styling products.

In view of the foregoing amendments and remarks, reconsideration and allowance of the subject claims is respectfully requested.

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If a telephone conversation would be of assistance in advancing the prosecution of the present application, applicants' undersigned attorney invites the Examiner to telephone at the number provided.

Respectfully submitted,



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